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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/552,683

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EXAMINER

RIPA, BRYAN D

ART UNIT

PAPER NUMBER

1795

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DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/552,683	Applicant(s) ZIMMERMANN, STEFAN	
	Examiner BRYAN D. RIPA	Art Unit 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) 6-18 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☐ Claim(s) ____ is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 October 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>10/11/05</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Priority

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

The information disclosure statement filed on October 11, 2005 fails to comply with 37 CFR 1.98(a)(3) because it does not include a concise explanation of the relevance, as it is presently understood by the individual designated in 37 CFR 1.56(c) most knowledgeable about the content of the information, of each patent listed that is not in the English language (specifically FR 2327191). It has been placed in the application file, but the information referred to therein has not been considered.

Claim Objections

Claims 3 and 4 are objected to because of the following informalities:

- In both claims 3 and 4 reference numerals 60 and 70 are used referring to the “outer electrode” and “contact element” respectively. However, these reference numerals are not used in the specification. They should either be removed from those claims or replaced with the appropriate reference numeral if desired.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

1. Claim 5 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

More specifically, claim 5 recites the limitation "the guiding element" in the second line of the claim. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Powell, (U.S. Pat. No. 2,093,619) (hereinafter referred to as "POWELL").

Regarding claim 1, POWELL teaches a discharge tube comprising an insulator tube with an inner and outer face (see dielectric 9 having an inner and outer face), an inner electrode which is in contact with the inner face (see negative electrode 10 in

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contact with the inner surface of dielectric 9), an outer electrode which is in contact with the outer face (see positive electrode 11 in contact with the outer surface of dielectric 9), and a contact element in electrical contact with the outer electrode at least along the greatest part of the length of the outer electrode (see crossbars 23 in electrical contact with plates 16, which make up positive electrode 11 and nuts 43 and bolts 42 which when tightened would cause crossbars 23 to contact plates 16; see also page 2 left-hand col. lines 53-56; page 2 right-hand col. lines 48-69). See figures 1 and 2.

3. Claims 1-3 and 22 are rejected under 35 U.S.C. 102(b) as being anticipated by Mausgrover et al., (U.S. Pat. No. 5,433,927) (hereinafter referred to as "MAUSGROVER").

Regarding claims 1 and 2, MAUSGROVER teaches a discharge tube comprising an insulator tube with an inner and outer face (see first dielectric 16 having an inner and outer face; col. 5 lines 49-51), an inner electrode which is in contact with the inner face (see inner electrode 17 in contact with the inner surface of first dielectric 16; col. 5 lines 49-51), an outer electrode which is in contact with the outer face (see outer electrode 18 in contact with the outer surface of first dielectric 16; col. 5 lines 49-51), and a contact element in electrical contact with the outer electrode at least along the greatest part of the length of the outer electrode (see clamp 38 connected to high voltage wire 22b which acts as the electrical contact and runs along the side of outer electrode 18 for its entire length; col. 7 lines 24-30). See figures 2 and 3.

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Regarding claim 3, MAUSGROVER teaches the discharge tube wherein the contact element is connected to the outer electrode in a material-locking way (see col. 7 lines 24-30 teaching clamp 38 binding outer electrode 18 to dielectric tube 16; see also figures 2 and 3).

Regarding claim 22, MAUSGROVER teaches the discharge tube wherein the insulator tube is made of borosilicate glass (see col. 5 lines 51-57 teaching the use of borosilicate glass as the preferable material for the dielectric tube, i.e. insulator tube).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

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4. Claims 1-3 and 21-23 rejected under 35 U.S.C. 103(a) as being unpatentable over Takeda et al., (WIPO Pub. No. 2001/87364 A1), with reference to English equivalent (U.S. Pub. No. 2003/0072675) (hereinafter referred to as "TAKEDA") in view of Bunn, (U.S. Pat. No. 3,933,614) (hereinafter referred to as "BUNN").

Regarding claims 1 and 2, TAKEDA teaches a discharge tube comprising an insulator tube with an inner and outer face (see glass tube 203 having an inner and outer face), an inner electrode which is in contact with the inner face (see inner electrode 204 in contact with the inner surface of glass tube 203), an outer electrode which is in contact with the outer face (see outer electrode 205 in contact with the outer surface of glass tube 203), and a contact element in electrical contact with the outer electrode (at the end of lead 10). TAKEDA, however, does not explicitly teach the contact element being in electrical contact for at least along the greatest part of the length of the outer electrode. See figure 9.

However, BUNN teaches the contact element for a mesh electrode being in electrical contact over and extending along the entire length of the electrode (see electrode connectors 42 and 43 in figure 1; col. 2 lines 34-46).

Consequently, as shown by BUNN, a person of ordinary skill in the art would accordingly have recognized the use of an electrical contact element for a mesh electrode extending across the entire length of the electrode to facilitate the making of an effective electrical connection.

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The simple substitution of one known element for another is likely to be obvious when predictable results are achieved. See *KSR International Co. v. Teleflex Inc.*, 82 USPQ2d 1385, 1395–97 (2007) (see MPEP § 2143, B.).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to extend the length of the electrical contact of TAKEDA across the entire length of the electrode as shown in BUNN to obtain the predictable result of having the contact element as claimed.

Regarding claim 3, TAKEDA teaches the discharge tube wherein the contact element is connected to the outer electrode in a material-locking way (see figure 9 showing the end of lead 10 attached to outer electrode 205 which would be implicitly understood by one of ordinary skill in the art to be attached by being physically attached, i.e. by soldering, clamp, nut and bolt, etc.).

Regarding claim 21, TAKEDA teaches the discharge tube wherein the outer electrode is produced from a radially expandable woven wire fabric or braided wire fabric in the shape of a hose (see ¶188 teaching the use of wire hose-shaped meshes, which would be radially expandable, produced by plain-weaving wire for use in forming the outer electrode).

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Regarding claim 22, TAKEDA teaches the discharge tube wherein the insulator tube is made of borosilicate glass (see ¶188 teaching the use of Pyrex, i.e. borosilicate glass, as the preferable material for the glass tube, i.e. insulator tube).

Regarding claim 23, TAKEDA teaches the discharge tube wherein the insulator tube at a first longitudinal end comprises a base, which is produced so as to be integral with the insulator tube and that the insulator tube at a second longitudinal end comprises an aperture (see figure 9 showing one end of glass tube 203 integrally formed with stopping member 7, i.e. a base, and the other end of glass tube 203 having an aperture).

5. Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over TAKEDA in view of BUNN as applied to claims 1 and 3, and further in view of Slipiec et al., (U.S. Pat. No. 3,967,131) (hereinafter referred to as "SLIPIEC").

Regarding claims 4 and 5, TAKEDA as modified by BUNN does not explicitly teach the outer electrode forming a guiding element in which the contact element is received. Rather, TAKEDA as modified by BUNN teaches the outer electrode at a radial distance from the insulator tube, but electrically connected on the outside of the wire mesh element forming the outer electrode (see figure 9 from TAKEDA).

However, SLIPIEC teaches the connector to a wire mesh outer electrode being on the inside of the element forming the outer electrode, thereby having a raised

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portion, i.e. a guiding element which could be considered a channel, in which the contact element is received (see figure 1 and rigid terminal bar 39 as well as connector leads 25 which are electrically connected to their respective mesh electrode by having the contact element, i.e. a wire, sandwiched by the wire mesh forming the electrode).

Consequently, as shown by SLPIEC, a person of ordinary skill in the art would accordingly have recognized that the electrical contact element can be placed underneath the wire mesh electrode, i.e. to have the wire mesh electrode formed around the contact element, to facilitate the formation of an electrically connection.

The simple substitution of one known element for another is likely to be obvious when predictable results are achieved. See *KSR International Co. v. Teleflex Inc.*, 82 USPQ2d 1385, 1395–97 (2007) (see MPEP § 2143, B.).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to have the electrical connection formed by a contact element formed underneath the mesh electrode as taught by SLPIEC instead of having the electrical connection formed on the outside of the wire mesh electrode as taught by TAKEDA to obtain the predictable result of having the outer electrode forming a guiding element in which the contact element is received.

Please note, regarding the interpretation of claim 5 the examiner is treating the limitation reciting “wherein the contact element is inserted into the guiding element” to be a product-by-process claim limitation since it recites the manner in which the device is assembled. The patentability of a product or apparatus does not depend on its

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method of production or formation. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process (see MPEP § 2113). As a result, the examiner is interpreting claim 5 to require only the structural limitations recited in the claim, namely that the guiding element be in the form of a channel and the contract element be in the form of a wire.

6. Claims 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over MAUSGROVER as applied to claim 1 above, and further in view of Hutter (U.S. Pat. No. 4,101,783) (hereinafter referred to as "HUTTER").

Regarding claims 19 and 20, MAUSGROVER does not teach the inner electrode being produced from a flexible laminar material with a spring element with at least one metal wire which is in contact with the inner electrode and provides tension to keep the inner electrode against the inner face of the insulator tube.

However, HUTTER teaches a discharge tube where the inner electrode is produced from a flexible laminar material (see col. 5 lines 29-30 teaching the inner electrode being a thin metallic foil) having a spring element with at least one metal wire which is in contact with the inner electrode and loads the inner electrode against the inner face along a part of the length of the inner electrode (see figure 5; col. 5 lines 29-43).

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Furthermore, HUTTER teaches the spring element being a helical spring wherein the outer diameter of the helical spring in the non-mounted condition is greater than the inner diameter of the inner electrode mounted in the insulator tube (see figure 5; col. 5 lines 29-43 teaching the spring element being a helical spring which would bias the inner electrode against the inner face of the dielectric tube thus requiring the outer diameter of the spring to be greater than the inner diameter of the inner electrode).

HUTTER teaches this inner electrode configuration to prevent the formation of air gaps between the inner electrode and the inner face of the insulator or dielectric tube which can result in undesirable discharges and ultimately damage the insulator or dielectric layer (see col. 5 lines 38-43).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to substitute the inner electrode configuration of MAUSGROVER with the inner electrode configuration of HUTTER to provide for the elimination of air gaps between the inner electrode and the inner face of the insulator tube.

7. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over TAKEDA as modified by BUNN as applied to claim 1 and 23 above, and further in view of Blanchard, (U.S. Pat. No. 3,530,058) (hereinafter referred to as "BLANCHARD").

Regarding claim 24, TAKEDA and BUNN fail to teach the insulator tube being tapered towards the aperture along a part of its length.

However, BLANCHARD teaches an insulator tube along a part of its length being tapered toward an aperture (see corrugated end 3b of glass tube 2a in figure 1 which is tapered towards the aperture at several points).

Consequently, as shown by BLANCHARD, a person of ordinary skill in the art would accordingly have recognized the use of a tapered insulator tube.

The simple substitution of one known element for another is likely to be obvious when predictable results are achieved. See *KSR International Co. v. Teleflex Inc.*, 82 USPQ2d 1385, 1395–97 (2007) (see MPEP § 2143, B.).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to substitute the untapered insulating tube of TAKEDA with the tapered tube of BLANCHARD.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to BRYAN D. RIPA whose telephone number is 571-270-7875. The examiner can normally be reached on Monday to Friday, 9:00 AM to 5:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Alexa Neckel can be reached on 571-272-1446. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/B. D. R./
Examiner, Art Unit 1795

/Brian J. Sines/
Supervisory Patent Examiner, Art Unit 1795